

COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

FOR :

803127 SERIES & 803163 SERIES

CREW OXYGEN SYSTEM.

REGULATOR, TRANSDUCER & COUPLING ASSEMBLIES

and

804182 SERIES

TRANSDUCER & COUPLING ASSEMBLIES

SCOTT®

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35-12-03

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June 15 / 94



**COMPONENT MAINTENANCE MANUAL
WITH ILLUSTRATED PARTS LIST
803163, 803127 & 804182 SERIES**

RECORD OF REVISIONS

Retain this record in the front of the manual. On receipt of revisions, insert revised pages in the manual and enter revision number, date inserted, and initials.



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RECORD OF TEMPORARY REVISIONS

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**COMPONENT MAINTENANCE MANUAL
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INTRODUCTION**1. Scope**

This manual establishes the user maintenance, overhaul and service procedures for servicing the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies and the 804182 Series Transducer and Coupling Assemblies described herein. Dash configurations of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies that are covered by this CMM are indicated below.

803163-01 thru -06,
803163-11 thru -16,
803127-01, and
804182-01 & -02

This manual provides the following information:

- A. Specifies proper safety regulations to be followed while performing service on oxygen equipment used in aviation applications.
- B. Establishes the proper sequence of operations to be performed on the defined equipment.
- C. Provides the user with data necessary to properly maintain, check, test and repair the equipment.

2. WARNINGS

The following WARNINGS are presented to inform the user of this manual of the requirements which shall be adhered to when performing service procedures on this equipment. Additional WARNINGS will be found in the procedural steps in the manual.

WARNING: ANY SERVICE OR OVERHAUL PERFORMED ON THIS APPARATUS SHALL BE DONE ONLY BY THOSE FACILITIES EXPERIENCED IN, OR BY PERSONNEL KNOWLEDGEABLE IN, AVIATION OXYGEN EQUIPMENT. IF NONE ARE KNOWN, CONTACT SCOTT AVIATION OR ITS DISTRIBUTORS FOR NAMES OF AUTHORIZED SERVICE CENTERS.

ALL PROCEDURES DESCRIBED IN THIS MANUAL SHALL BE PERFORMED IN AN AREA FREE OF OIL, GREASE, FLAMMABLE SOLVENTS OR OTHER COMBUSTIBLE MATERIALS. DUST, LINT, AND FINE METAL FILINGS ARE ALSO POTENTIAL COMBUSTIBLES THAT MIGHT IGNITE AND RESULT IN AN EXPLOSION WHEN EXPOSED TO PRESSURIZED OXYGEN.

2. WARNINGS - (Continued)

DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. DUST, LINT, AND FINE METAL FILINGS ARE ALSO POTENTIAL COMBUSTIBLES THAT MIGHT IGNITE AND RESULT IN AN EXPLOSION WHEN EXPOSED TO PRESSURIZED OXYGEN.

3. Product Support Services

Product support services for the equipment covered by this document is provided by Scott Aviation. The services include repair and overhaul, replacement parts, and technical documentation.

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4. Verification

"Table-top" verification of data presented in this document was performed based on the similarity of information presented for part numbers 803163 and 803127 in Component Maintenance Manual 35-11-75.

Verification Date: June 13, 1994

DESCRIPTION AND OPERATION

1. General

This section describes the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies (see Figure 1), and the 804182 Series Transducer and Coupling Assemblies (not shown). The operation of the units and a typical installation configuration are also presented in this section.

2. Description

The 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies are pressure reducing mechanisms that reduces a 2000 psi, or lower, variable oxygen source to a usable pressure for use with oxygen breathing equipment.

High pressure oxygen enters the Crew Oxygen System Regulator, Transducer and Coupling Assembly through the Coupling Assembly. A thermal compensator brush is contained within the Coupling Assembly to minimize temperature increase of the incoming gaseous oxygen. An electromechanical pressure transducer is connected to the Coupling Assembly. The Transducer operates on the 28VDC power supply of the aircraft and emits an output voltage (0-5 VDC) that is proportional to the pressure of the incoming oxygen.

The 804182 Series Transducer and Coupling Assemblies are also connected to a high pressure oxygen source and provide an output voltage (0-5 VDC) that is proportional to the pressure of the incoming oxygen. The flow-through oxygen from this unit will supply a downstream regulator assembly.

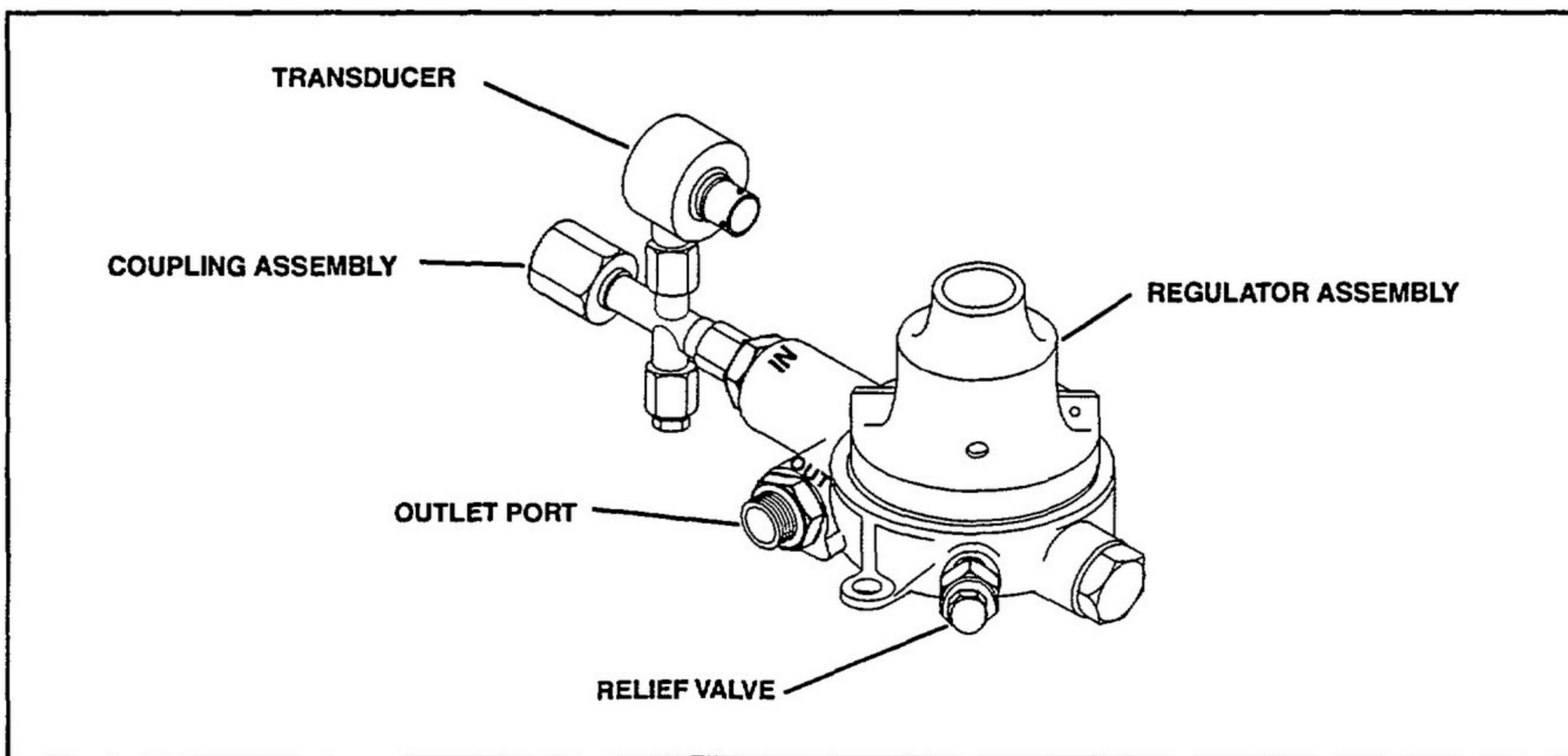


Figure 1 - Crew Oxygen System Regulator, Transducer & Coupling Assembly

3. Regulator Operation (803163 Series & 803127 Series Only)

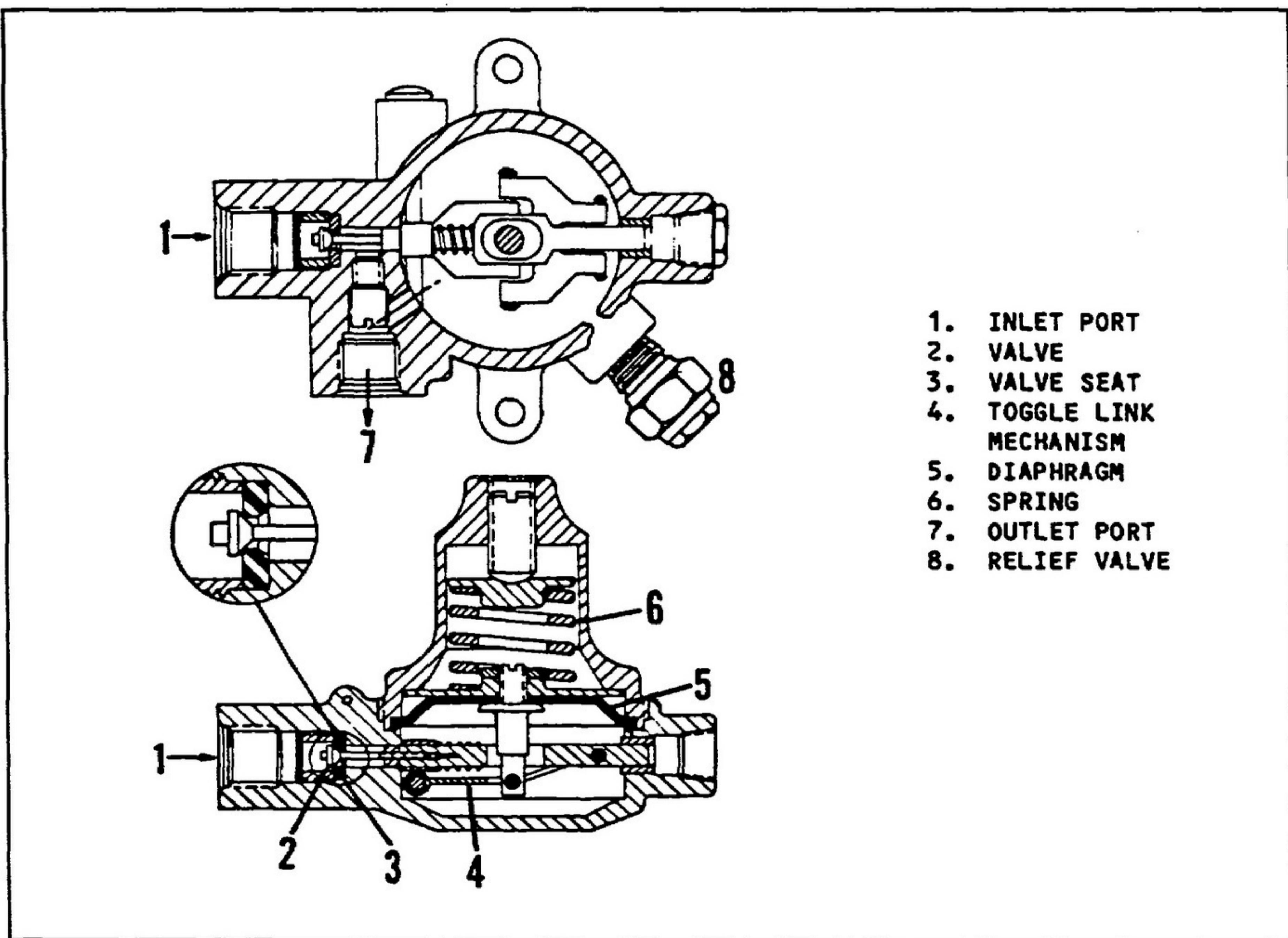


Figure 2 - Regulator Cross Section

High pressure oxygen enters the regulator through inlet port (1, Figure 2). Oxygen flow into the regulator is controlled by valve (2). Valve (2) is held against seat (3) by toggle link mechanism (4) which is maintained in the closed position by outlet pressure acting on diaphragm (5). Spring (6) force is preset and acts on the upper surface of the diaphragm. If spring force exceeds the force created by the outlet pressure acting on the diaphragm, the toggle link joint moves downward thus moving valve (2) away from its seat. This allows oxygen to flow. Flow through outlet (7) continues until outlet pressure increases sufficiently to counter-balance the spring force to close the valve. Relief valve (8) is preset to relieve at outlet pressures in excess of 100 to 110 psi, and to re-seat at reduced pressures.

4. Typical Installation

A typical installation of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies in a pressurized control cabin is shown in Figure 3. Oxygen, which is stored at a high pressure in Cylinder (1), flows through Cylinder Valve (2) to the Oxygen Crew System Regulator, Transducer and Coupling Assembly (3). The low pressure oxygen from the outlet port of the regulator portion of the Crew Oxygen System Regulator, Transducer and Coupling Assembly then flows through the Oxygen Shut-off Valve (4) and is available at the Oxygen Outlet Fittings (5) positioned throughout the control cabin.

The 804182 Series Transducer and Coupling Assembly installs in a similar manner but will connect to a pressure regulator immediately downstream of the Transducer and Coupling Assembly.

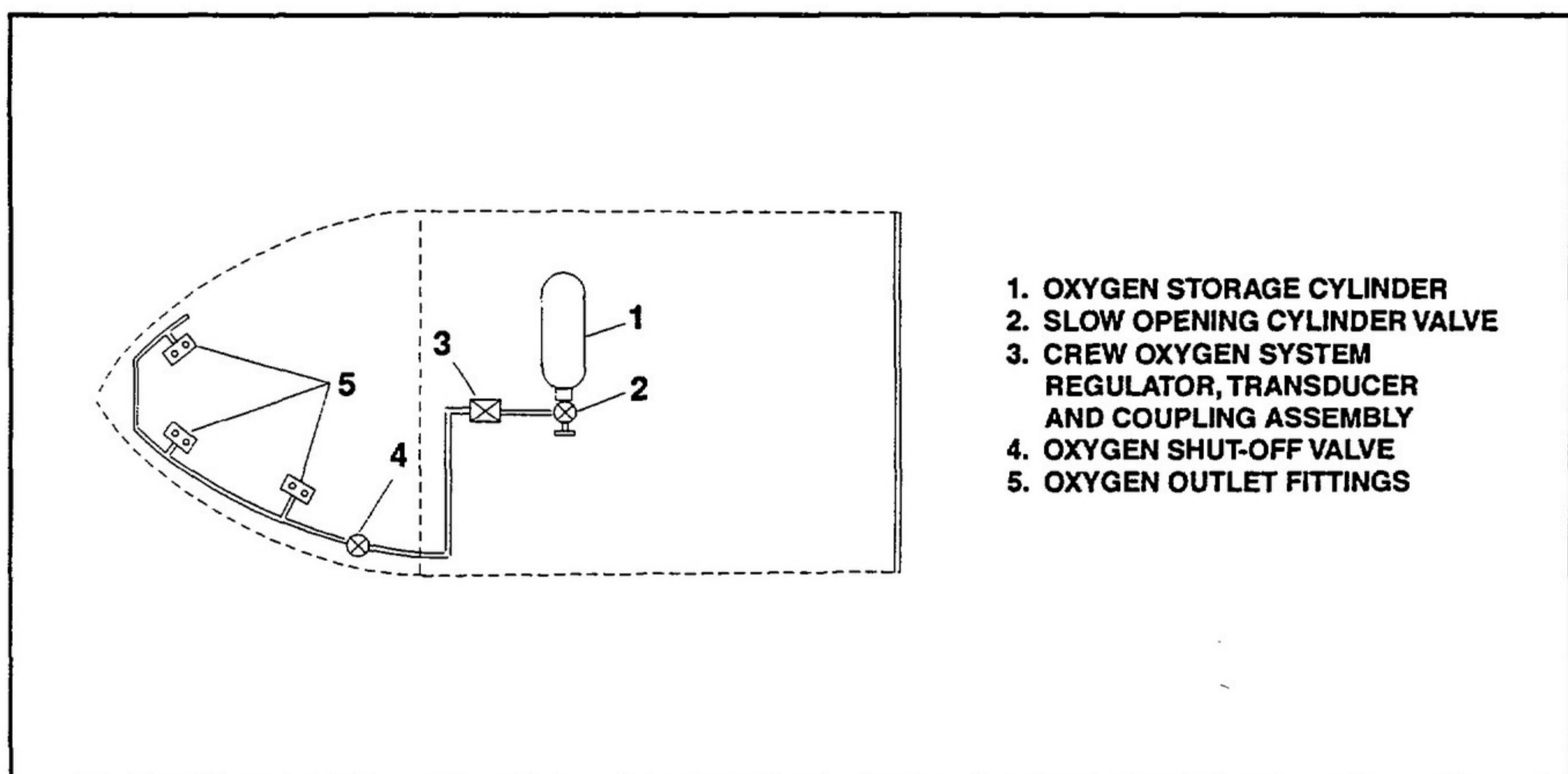


Figure 3 - Typical Installation

TESTING AND FAULT ISOLATION

1. General

This section contains the testing and fault isolation procedures used to evaluate performance of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies. Should a failure occur during testing procedures, refer to the troubleshooting table (Table 106) for fault isolation and suggestions to remedy the problem.

2. Test Equipment

Test equipment required to evaluate performance of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies is presented in Table 101.

Table 101: Test Equipment

NOMENCLATURE	PART NO. (Code)	MANUFACTURER
Regulator, Oxygen	PR55-1A51H9L151 (V62527)	Vemco Corp. (Go, Inc.) San Dimas, CA 91773-2925
Digital Multimeter (DMM) -	1080A (V89536)	Fluke Corp. Everett, WA 98203-5829
Power Supply (24 VDC)	LLS-3040 (V97T90)	Lambda Electronics Melville, NY 11747-3700
Pressure Gauge (0-2000 PSI) -	132267 (1403 Series) (V61349)	Ametek (U.S. Gauge) Sellersville, PA 18960
NOTES: Equivalent test equipment may be substituted.		

3. Test Materials

A list of consumable test materials is presented in Table 102. Equivalent materials may be substituted.

Table 102: Consumable Test Materials

MATERIAL (Code)	DESCRIPTION	MANUFACTURER
Oxygen	MIL-O-27210, Type 1	Local Vendor
Rust Inhibiting Leak Test Solution (V72658)	Sodium Chromate; 5cc per gallon of water	Allied Signal Corp. Morristown, NJ

4. Required Documents

The Component Maintenance Manuals (CMM's) listed in Table 103 will be required for evaluating operation of the 27660 Series Oxygen Regulator Assemblies (65, 65A and 65B) and Transducer Assembly (5). Transducer Assemblies (5A and 10) are non-repairable. If these transducer assemblies do not meet the parameters defined in this Testing Section, the units shall be replaced.

Table 103: Required Documents

COMPONENT	PART NUMBER	MANUFACTURER	CMM No.
Oxygen Regulator Assembly (V53655)	27660-01 thru -23	Scott Aviation Lancaster, NY 14086	35-11-26
Transducer Assembly (V20768)	10003108	Sparton Technology, Inc. Rio Rancho, NM	35-11-02

5. Test Sequence

Unless otherwise specified, functional testing of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies shall be performed in the order in which they are presented within this document.

6. Test Procedures

WARNING: IN ALL PROCEDURES LISTED BELOW, OXYGEN IS SPECIFIED AS THE TEST GAS. WATER PUMPED NITROGEN OR OIL-FREE AIR MAY BE SUBSTITUTED, BUT TEST RESULTS MUST BE CONVERTED PRIOR TO BEING COMPARED WITH TEST RESULTS SPECIFIED FOR OXYGEN. DO NOT, UNDER ANY CIRCUMSTANCES, USE OIL PUMPED GAS AS THIS WILL CAUSE CONTAMINATION OF THE VALVE AND TEST EQUIPMENT. OIL, EVEN IN MINUTE QUANTITY, COMING IN CONTACT WITH OXYGEN MAY CAUSE AN EXPLOSION OR FIRE.

NOTE: The Leakage Test and the Output Voltage Test are performed on the assembled 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assembly, and the assembled 804182 Series Transducer and Coupling Assemblies.

A. Leakage Test:

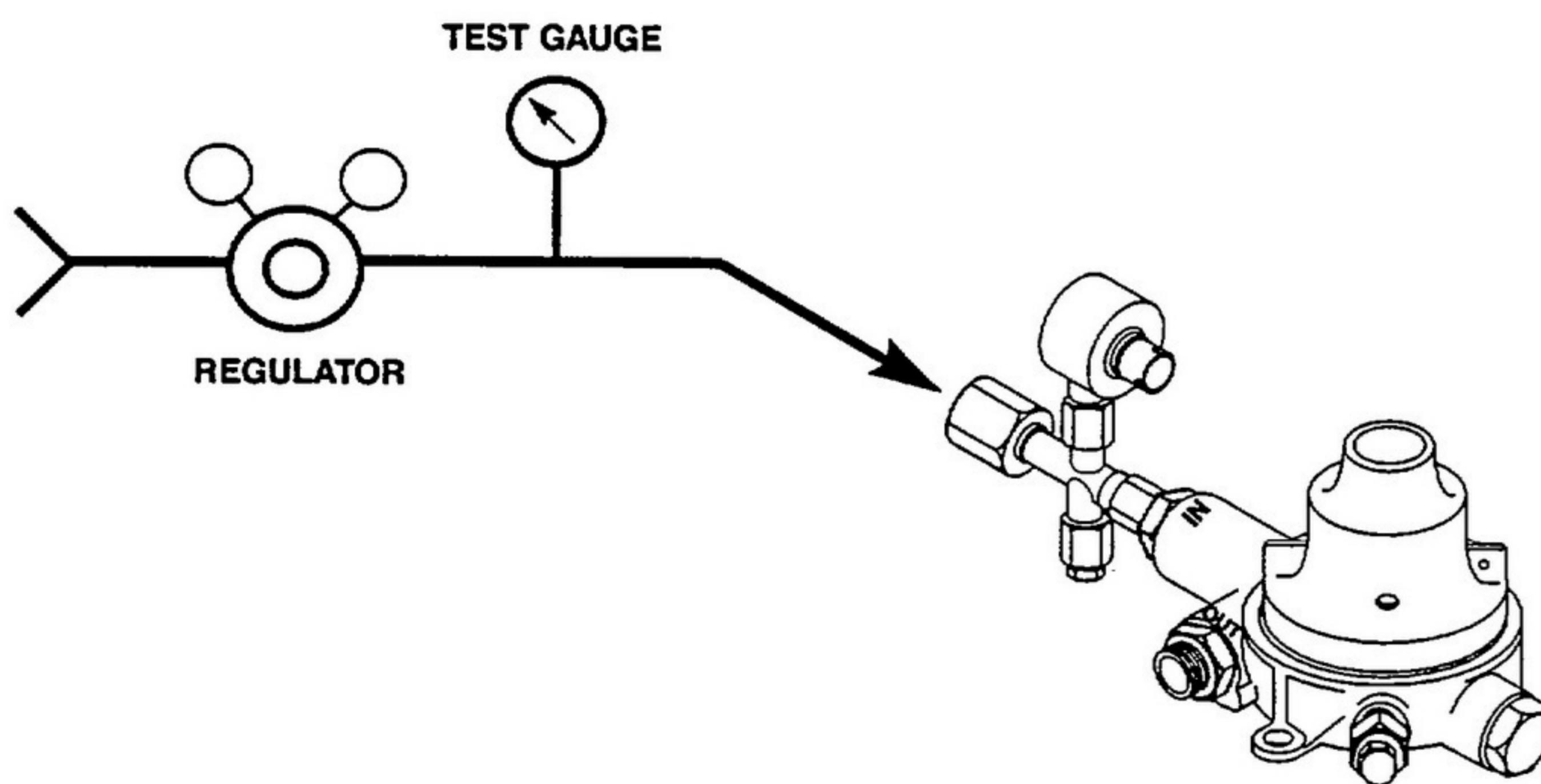


Figure 101 Typical Test Setup

- (1) Plug OUTLET port of regulator assembly (65, 65A or 65B, IPL Figure 1). This is only required for the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies.
- (2) Install one plug (15) in coupling assembly (25), or two plugs (15) in coupling assembly (25A).

NOTE: Plug (15) is not required for the 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies.

6. Test Procedures (Continued)

A. Leakage Test (Continued):

- (3) Apply pressurized oxygen ($1850 +0/-50$ psi / $12.76 +0/-0.34$ MPa) to inlet port of coupling assembly (25, 25A or 30). See Figure 101.
- (4) Using leak test solution, check for leakage between transducer (5, 5A or 10) and coupling assembly (25, 25A or 30), between plug (15) and coupling assembly (25 or 25A) and between coupling assembly (25 or 30) and regulator assembly (65, 65A or 65B). There shall be no evidence of leakage during a period of one minute.
- (5) Discontinue flow of pressurized oxygen to inlet port of coupling assembly (25, 25A or 30). Remove plug(s) (15) from coupling assembly; remove moisture from exterior of assembly using clean, dry, oil-free air.

B. Output Voltage Test - Transducer:

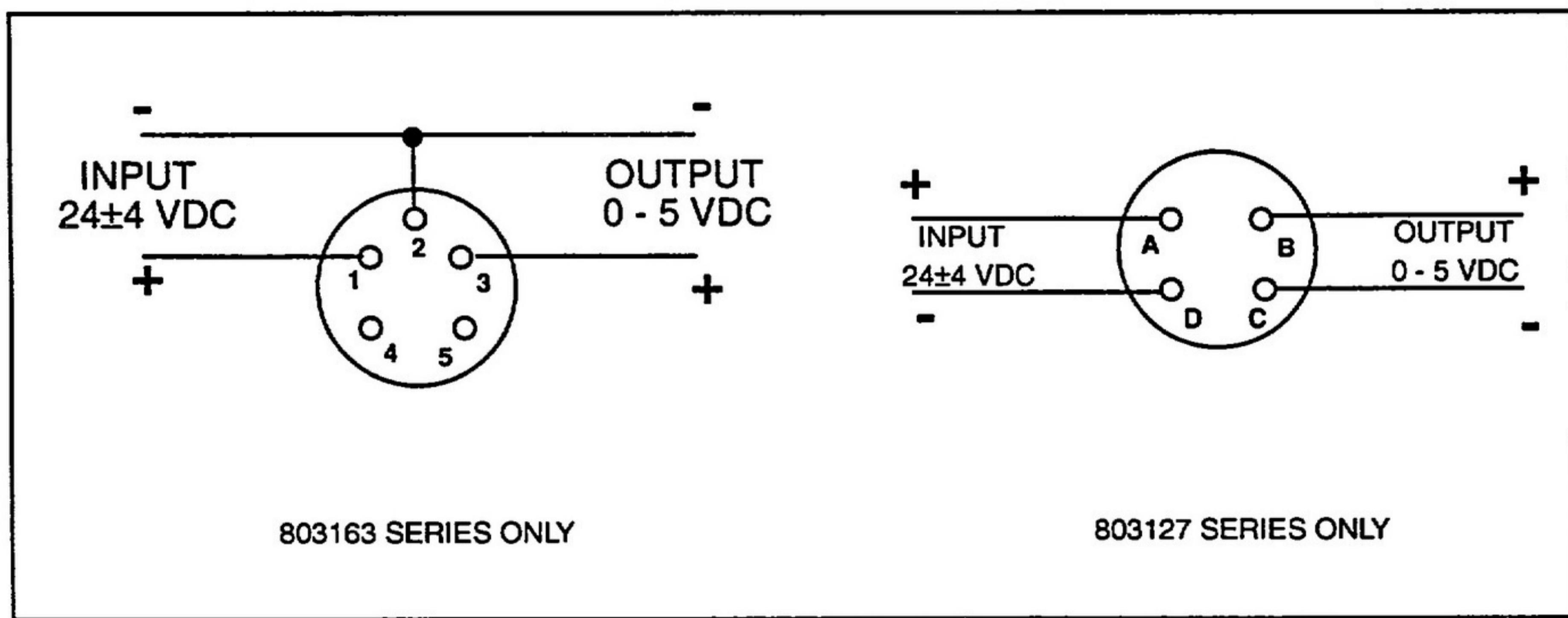


Figure 102 Transducer Connections - Output Voltage

- (1) Plug OUTLET port of regulator assembly (65, 65A or 65B, IPL Figure 1). This is only required for the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies.
- (2) Install one plug (15) in coupling assembly (25), or two plugs (15) in coupling assembly (25A).

NOTE: Plug (15) is not required for the 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies

B. Output Voltage Test - Transducer (Continued):

CAUTION: OBSERVE THE POLARITY AND ATTACHMENT POINTS OF LEAD WIRES WHEN CONNECTING THE POWER SUPPLY TO THE TRANSDUCER ASSEMBLY. EVEN MOMENTARY CONTACT WITH THE INCORRECT TERMINALS WILL DAMAGE THE TRANSDUCER ASSEMBLY.

- (3) Connect the 24 ± 4 VDC power supply and test probes of the test meter to the appropriate terminal pins of the transducer assembly. See Figure 102 for connection points.
- (4) Connect high pressure oxygen supply to the inlet port of the coupling assembly as shown in Figure 101.
- (5) Apply pressures indicated in Table 104 or Table 105 as applicable; observe corresponding output voltage indicated on test meter. Output voltages shall be within voltage ranges indicated in the applicable Table.

Table 104: Output Voltages (803163 Series and 804182 Series Only)

INLET PRESSURE		OUTPUT VOLTAGE (VDC)	
PSI	MPa	P/N 10003108 (Ref. Item 5, IPL Figure 1)	P/N 10008792 (Ref. Item 5A, IPL Figure 1)
500	3.45	0.896 - 1.344	1.036 - 1.204
1000	6.90	2.016 - 2.464	2.156 - 2.324
1500	10.34	3.136 - 3.584	3.276 - 3.444
2000	13.79	4.256 - 4.704	4.396 - 4.564

Table 105: Output Voltages (803127 Series Only)

INLET PRESSURE		OUTPUT VOLTAGE (VDC) P/N 10005937 (Ref. Item 10, IPL Figure 1)
PSI	MPa	
-0-	-0-	0 - 0.200
500	3.45	1.000 - 1.200
1000	6.90	2.000 - 2.200
1850	12.76	3.700 - 3.900

- (6) Discontinue supply of pressurized oxygen to valve assembly; remove plug(s) (15) from coupling assembly.



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6. Test Procedures (Continued)

C. Verify operation of regulator assembly (65, 65A and 65B, IPL Figure 1)

Refer to Component Maintenance Manual 35-11-26. See Table 103.

Table 106: Troubleshooting Chart

TROUBLE	PROBABLE CAUSE	REMEDY
Leakage between union (35, 35A, IPL Figure 1) and regulator assembly (65, 65A, 65B)	Loose union	Torque union per Table 801
	Faulty packing (40)	Replace packing
Leakage between elbow (45, IPL Figure 1) and regulator assembly (65, 65A, 65B)	Loose elbow	Torque elbow per Table 801
	Loose nut (50)	Torque nut per Table 801
	Faulty packing (40)	Replace packing
Leakage between transducer assembly (5 or 5A, IPL Figure 1) and coupling assembly (25 or 25A)	Loose transducer assembly	Tighten nut of coupling assembly (25 or 25A)
Leakage between transducer assembly (10, IPL Figure 1) and coupling assembly (30)	Loose transducer assembly	Tighten nut of coupling assembly (25 or 25A)
	Faulty packing (20)	Replace packing
Leakage between plug (15, IPL Figure 1) and coupling assembly (25, 25A or 30)	Loose plug	Torque plug per Table 801
Discrepant output voltage readings from transducer assembly (5A or 10, IPL Figure 1)	Faulty transducer assembly	Replace transducer assembly
Discrepant output voltage readings from transducer assembly (5, IPL Figure 1)	Faulty transducer assembly	Troubleshoot transducer assembly in accordance with CMM for that assembly (see Table 103)

DISASSEMBLY

1. General

This section describes the equipment and procedures necessary for disassembly of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies. Most repair procedures do not require complete disassembly of the unit. Disassemble units only to level necessary, as determined in Testing and Fault Isolation, to access suspect components.

2. Special Tools and Equipment

No special tools and/or equipment are required for disassembly of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies.

3. Required Documents

This disassembly section only addresses the removal of the transducer assemblies (5, 5A and 10) from the coupling assemblies (25, 25A and 30), and the removal of the coupling assemblies from the regulator assemblies (65, 65A and 65B), as required.

Disassembly procedures for transducer assembly (5) and for regulator assemblies (65, 65A and 65B) are presented in the CMM's indicated in Table 301. Transducer assemblies (5A and 10) are non-repairable and are not subject to disassembly.

Table 301: Required Documents

COMPONENT	PART NUMBER (Code)	MANUFACTURER	CMM No.
Oxygen Regulator Assembly	27660-01 thru -23 (V53655)	Scott Aviation Lancaster, NY 14086	35-11-26
Transducer Assembly	10003108 (V20768)	Sparton Technology, Inc. Rio Ranchero, NM	35-11-02

4. Disassembly

WARNING: TOOLS USED FOR MAINTENANCE / SERVICE OF OXYGEN RELATED EQUIPMENT SHALL BE CLEAN AND FREE OF CONTAMINANTS.

CAUTION: WHEN REMOVING TRANSDUCER ASSEMBLIES (5, 5A OR 10) FROM COUPLING ASSEMBLIES (25, 25A OR 30), DO NOT USE TRANSDUCER BODY AS A LEVER. USE A WRENCH ON THE FLATS OF THE SQUARE BOSS LOCATED ABOVE THE TRANSDUCER THREADS.

NOTE: Prior to disassembling a 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assembly, or the 804182 Series Transducer and Coupling Assembly, note the part number and determine the parts applicable to that assembly (refer to "EFFECT CODE" column of the Illustrated Parts List). Disregard any instructions that do not apply to the particular assembly being overhauled.

- A. Note orientation of transducer assembly (5,5A or 10). Remove transducer assembly from coupling assembly (25, 25A or 30); remove and discard preformed packing (20), as required.
- B. Remove plug (15) from coupling assembly (25).
- C. Note orientation of coupling assembly (25 or 30). Remove coupling assembly from regulator assembly (65, 65A or 65B).
- D. Remove union (35/35A) from regulator assembly (65, 65A or 65B); remove and discard preformed packing (40).
- E. Note orientation of elbow (45). Remove elbow and nut (50) from regulator assembly (65, 65A or 65B); remove and discard backup ring (55).

5. Transducer Disassembly

A. Transducer Assemblies (5A and 10, IPL Figure 1):

Transducer assemblies (5A and 10, IPL Figure 1) are non-repairable and are not subject to further disassembly.

B. Transducer Assembly (5, IPL Figure 1):

Disassemble transducer assembly (5, IPL Figure 1) in accordance with instructions provided in the appropriate CMM listed in Table 301.

5. Regulator Disassembly

Disassemble regulator assembly (65, 65A or 65B, IPL Figure 1) in accordance with instructions provided in the appropriate CMM listed in Table 301.

CLEANING

1. General

This section contains information regarding the equipment and procedures required for cleaning of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies. Prior to cleaning, units shall be disassembled in accordance with the Disassembly section of this document.

2. Safety

WARNING: SUITABLE EYE PROTECTION SHALL BE WORN DURING CLEANING PROCEDURES TO PREVENT EYE INJURIES.

WHEN USING CLEANING SOLVENTS, AVOID PROLONGED OR REPEATED CONTACT WITH SKIN AND INHALATION OF TOXIC VAPORS.

CLEANING PROCEDURES SHALL ONLY BE PERFORMED IN AN APPROVED CLEANING CABINET, OR IN A WELL VENTILATED ROOM OR AREA.

DO NOT USE SOLVENTS NEAR OPEN FLAMES, OR IN AREAS WHERE HIGH TEMPERATURES PREVAIL.

DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. DUST, LINT, AND FINE METAL FILINGS, ARE ALSO POTENTIAL COMBUSTIBLES THAT MIGHT IGNITE, AND RESULT IN AN EXPLOSION, WHEN EXPOSED TO PRESSURIZED OXYGEN.

3. Cleaning Materials

A list of cleaning materials is presented in Table 401. Equivalent materials may be substituted.

Table 401: Cleaning Materials

MATERIAL	DESCRIPTION	MANUFACTURER	REFER TO PARA.
Cleaner	Nonionic detergent, Type I (MIL-D-16791)	Commercially Available	6
Degreasing Agent (V72658)	Trichlorotrifluoroethane (MIL-C-81302) - OR - 1,1-Dichloro-1-fluoroethane	Allied Signal Corp. Morristown, NJ	5

4. Cleaning Procedures

Cleaning procedures are divided into categories: transducer assemblies, coupling assemblies, regulator assemblies and non-metallic components. Refer to the cleaning categories that are required for your particular equipment configuration. Cleaning procedures for each category are presented below.

5. Transducer Assemblies

CAUTION: DO NOT SUBMERGE OR VAPOR DEGREASE TRANSDUCER ASSEMBLIES. SUBMERGING THE TRANSDUCER ASSEMBLY WILL DAMAGE THE ELECTRICAL COMPONENTS CONTAINED WITHIN THE UNIT.

A. Transducer Assemblies (5A and 10, IPL Figure 1)

Flush ports and passages of the transducer assemblies that come in contact with oxygen using a suitable solvent. Dry the transducer with clean, dry (oil-free) air; wipe the exterior of the transducer assembly using a clean, lint-free cloth. Hydrocarbon contamination shall not exceed 3.0 mg. per square foot.

B. Transducer Assembly (5, IPL Figure 1)

Clean transducer assembly in accordance with instructions provided in the appropriate CMM listed in Table 402.

Table 402: Required Documents

COMPONENT	PART NUMBER	MANUFACTURER	CMM No.
Oxygen Regulator Assembly (V53655)	27660-01 thru -23	Scott Aviation Lancaster, NY 14086	35-11-26
Transducer Assembly (V20768)	10003108	Sparton Technology, Inc. Rio Ranchero, NM	35-11-02

6. Coupling Assemblies

Clean coupling assemblies using a vapor degreasing method with degreaser agents specified in Table 401. Dry components with clean, dry (oil-free) air. Hydrocarbon contamination shall not exceed 1.0 mg. per square foot.

7. Regulator Assemblies

Clean regulator assemblies (65, 65A and 65B, IPL Figure 1) in accordance with instructions provided in the appropriate CMM listed in Table 402.

8. Non-metallic Components

Clean non-metallic components using an ultrasonic detergent and water cleaning system. Parts shall be completely rinsed with clear water, and dried using clean, dry (oil-free) air. Hydrocarbon contamination shall not exceed 1.0 mg. per square foot.

CHECK**1. General**

Following the disassembly and cleaning procedures described in preceding sections of this document, all components of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies shall be checked prior to use in reassembly. If doubt exists about serviceability of a part, replace it.

NOTE: Do not examine o-rings, packings and seals. These items shall be replaced each time they are removed during disassembly.

2. Required Documents

The Component Maintenance Manuals (CMM's) listed in Table 501 will be required for checking the 27660 Series Oxygen Regulator Assemblies (65, 65A and 65B, IPL Figure 1), and Transducer Assembly (5). Transducer Assemblies (5A and 10) are non-repairable. If these transducer assemblies do not meet the inspection criteria defined in this Check Section, the units shall be replaced.

Table 501: Required Documents

COMPONENT	PART NUMBER	MANUFACTURER	CMM No.
Oxygen Regulator Assembly (V53655)	27660-01 thru -23	Scott Aviation Lancaster, NY 14086	35-11-26
Transducer Assembly (V20768)	10003108	Sparton Technology, Inc. Rio Rancho, NM	35-11-02

2. Regulator Assemblies

Check regulator assemblies (65, 65A and 65B, IPL Figure 1) in accordance with instructions provided in the appropriate CMM listed in Table 501.

3. Transducer Assemblies

NOTE: Check transducer assembly (5) in accordance with instructions provided in the appropriate CMM listed in Table 501.

For transducer assemblies (5A and 10) perform Check as follows:

- A. Inspect the entire transducer assembly (including the pressure port and electrical connector) for contamination.
- B. Inspect the electrical connector for bent, loose or broken pins.
- C. Inspect the pressure port for damage to the stainless steel diaphragm.
- D. Visually inspect all surfaces and threaded areas for evidence of damage, contamination, galling, burrs, excessive wear and corrosion.

NOTE: Excessive wear shall be defined as any obvious deformation, or deterioration of a part, which may render the unit inoperative or beyond operational limits.

4. Coupling Assemblies

Check coupling assemblies (25, 25A and 30) as follows:

- A. Visually inspect all surfaces and threaded areas for evidence of damage, contamination, galling, burrs, excessive wear and corrosion.

NOTE: Excessive wear shall be defined as any obvious deformation, or deterioration of a part, which may render the unit inoperative or beyond operational limits.

- B. Visually inspect all packing sealing surfaces for scratches or other obvious damage that may impair operation of the coupling assembly.

- C. Visually inspect thermal compensator brush for residual contamination.

REPAIR

1. General

This section defines the scope of repair procedures that shall be performed with respect to the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies. Prior to repair, components shall have been evaluated in accordance with the Check section of this document.

2. Repair

Repair shall be limited to only those activities below:

- A. Cleaning
- B. Burr removal
- C. Thread chasing
- D. Replacement of cracked, bent, broken, scored, or otherwise defective components.
- E. Replacement of any gasket, seal, packing, o-ring or filter, when removed during disassembly.

ASSEMBLY

1. General

This section describes the equipment and procedures necessary for assembly of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies.

2. Special Tools and Equipment

No special tools and/or equipment are required for assembly of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies.

WARNING: TOOLS USED FOR MAINTENANCE/SERVICE OF OXYGEN RELATED EQUIPMENT SHALL BE CLEAN AND FREE OF CONTAMINANTS.

3. Assembly Materials

A list of consumable materials, required for assembly of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies, is provided in Table 701.

Table 701: Consumable Assembly Materials

MATERIAL	DESCRIPTION	MANUFACTURER	REFER TO PARA.
Oxygen Lubricant	Krytox 240 AC (V18873)	E.I. DuPont DeNemours & Co. Inc. Wilmington, DE	4.B
Lockwire	MS20995C20	Commercially Available	6.J

4. Pre-Assembly Requirements

- A. All components, that are to be used in assembly of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies, shall have been cleaned and checked in accordance with preceding sections of this document and in accordance with the CMM's listed in Table 701.
- B. Unless otherwise noted, all packings, seals and o-rings shall be lubricated with a thin film of Krytox 240 AC Lubricant, prior to installation.

5. Required Documents

This assembly section only addresses the installation of the coupling assemblies (25, 25A and 30) on the regulator assemblies (65, 65A and 65B) and the installation of the transducer assemblies (5, 5A and 10) on the coupling assemblies, as required.

Assembly procedures for transducer assembly (5) and for regulator assemblies (65, 65A and 65B) are presented in the applicable CMM indicated in Table 701. Transducer assemblies (5A and 10) are non-repairable and were not subject to disassembly.

Table 701: Required Documents

COMPONENT	PART NUMBER	MANUFACTURER	CMM No.
Oxygen Regulator Assembly (V53655)	27660-01 thru -23	Scott Aviation Lancaster, NY 14086	35-11-26
Transducer Assembly (V20768)	10003108	Sparton Technology, Inc. Rio Rancho, NM	35-11-02

6. Assembly

NOTE: Not all assembly procedures are required for each 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assembly, or each 804182 Series Transducer and Coupling Assembly configuration. Refer to the "EFF CODE" column of the Illustrated Parts List to determine components used on the configuration being assembled.

- A. Install packing (40) on union (35); install union in INLET port of regulator assembly (65, 65A or 65B). Torque union to 170 - 200 IN LBS (19.2 - 22.6 Nm).

6. Assembly - Continued)

- B. Install packing (40) on union (35); install union in OUTLET port of regulator assembly (65, 65A or 65B). Torque union to **170 - 200 IN LBS (19.2 - 22.6 Nm)**.
- C. Install nut (50) and backup ring (55) on elbow (45). Thread elbow into OUTLET port of regulator assembly (65, 65A or 65B); orient the elbow in the position that was noted during disassembly. Torque nut (50) against regulator body to **170 - 200 IN LBS (19.2 - 22.6 Nm)**.
- D. Orient flow axis of coupling assembly (25, 25A or 30) to coincide with axis of INLET port of regulator assembly (65, 65A or 65B). Thread nut of coupling assembly on union (35) that is installed regulator INLET port; orient the coupling assembly in the position that was noted during disassembly. Torque coupling assembly nut onto union (35) to **170 - 200 IN LBS (19.2 - 22.6 Nm)**.

NOTE: The thermal compensating brush that is welded inside the coupling body coincides with the flow axis of coupling assembly.

- E. Install plug (15) in appropriate port of coupling assembly (25). Torque coupling assembly nut onto plug (15) to **170 - 200 IN LBS (19.2 - 22.6 Nm)**.

CAUTION: WHEN ATTACHING TRANSDUCER ASSEMBLIES (5, 5A OR 10) TO COUPLING ASSEMBLIES (25, 25A OR 30), DO NOT USE TRANSDUCER BODY AS A LEVER. USE A WRENCH ON THE FLATS OF THE SQUARE BOSS LOCATED ADJACENT TO THE TRANSDUCER THREADS.

- F. Thread nut of coupling assembly (25 or 25A) onto threads of transducer assembly (5 or 5A); orient the transducer assembly in the position that was noted during disassembly. Torque coupling assembly nut onto threads of transducer assembly to **170 - 200 IN LBS (19.2 - 22.6 Nm)**.
- G. Thread nut of coupling assembly (30) onto threads of transducer assembly (10). Torque coupling assembly nut onto threads of transducer assembly to **170 - 200 IN LBS (19.2 - 22.6 Nm)**.
- H. Test completed assembly in accordance with the Testing & Fault Isolation Section of this document.
- J. Install lockwire as required in accordance with MS33540.

6. Storage Instructions

- A. DO NOT use preservative coating on any of the components.**
- B. Seal all ports to prevent foreign matter from entering the components. Store in sealed polyethylene or polyvinyl bag.**

FITS AND CLEARANCES

Torque values, critical to the assembly and operation of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies, are listed in Table 801.

Table 801: Torque Values

IPL REFERENCE (Figure 1) ITEM No.	CONNECTION	TORQUE VALUES	
		U.S.	METRIC (Nm)
25, 25A, 30	Coupling To: Transducer (5, 5A or 10) Plug (15) Union (35)	170-200 IN LBS	19.2 - 22.6
35	Union to Regulator	170-200 IN LBS	19.2 - 22.6
50	Nut to Regulator	170-200 IN LBS	19.2 - 22.6

SPECIAL TOOLS, FIXTURES AND TEST EQUIPMENT

Special test equipment required for testing of the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies are presented in Table 901. No special tools and/or equipment required for assembly/disassembly of the equipment covered in this CMM.

Table 901: Test Equipment

NOMENCLATURE	PART NO. (Code)	MANUFACTURER
Regulator, Oxygen	PR55-1A51H9L151 (V62527)	Vemco Corp. (Go, Inc.) San Dimas, CA 91773-2925
Digital Multimeter (DMM)	1080A (V89536)	Fluke Corp. Everett, WA 98203-5829
Power Supply (24 VDC)	LLS-3040 (V97T90)	Lambda Electronics Melville, NY 11747-3700
Pressure Gauge (0-2000 PSI)	132267 (1403 Series) (V61349)	Ametek (U.S. Gauge) Sellersville, PA 18960
NOTE: Equivalent test equipment may be substituted.		

ILLUSTRATED PARTS LIST

1. This Illustrated Parts List lists and describes the parts for the 803163 Series & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies, and the 804182 Series Transducer and Coupling Assemblies.
 - A. The Illustrated Parts List consists of parts listings and completely indexed drawings. The particular 803163 & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assemblies and the 804182 Series Transducer and Coupling Assemblies are followed immediately by their component parts, properly indented thereunder, to show their relationship to the assembly.
 - B. The quantities listed in the "UNITS PER ASSY" column are, in the case of assemblies, the total quantity used per 803163 & 803127 Series Crew Oxygen System Regulator, Transducer and Coupling Assembly or the 804182 Series Transducer and Coupling Assembly at the location indicated, while the component parts indented under the assemblies are the quantity used per assembly. The quantities specified, therefore, are not necessarily the total used per assembly.
 - C. The part numbers listed in the "PART NUMBER" column are Scott Aviation part numbers except standard parts, which are listed by "MS" and "AN" part numbers, and vendor items, which are listed by vendor part numbers.
 - D. A six place code, following the description of a part, indicates the manufacturer of that part. Standard parts and parts carried under Scott part numbers have no vendor's code. The following list contains the codes, and names and addresses of manufacturers supplying items or articles for the Crew Oxygen System Regulator, Transducer and Coupling Assemblies and the 804182 Series Transducer and Coupling Assemblies. This listing includes the vendor codes presented throughout this CMM, and those contained within the parts lists section.

VENDOR CODES

<u>CODE</u>	<u>NAME AND ADDRESS</u>
V18873	E.I. DuPont DeNemours & Co., Inc. Wilmington, DE
V20768	Sparton Technology, Inc. Rio Rancho, NM

VENDOR CODES - (Continued)

<u>CODE</u>	<u>NAME AND ADDRESS</u>
V61349	Amatek U.S. Gauge Division Sellersville, PA 18960
V62527	Go, Incorporated (Division of Vemco Corporation) 305 South Acacia Street San Dimas, CA 91773-2925
V72658	Allied Signal Corp. Morristown, NJ
V89536	Fluke Corporation 6920 Seaway Blvd. Everett, WA 98203-5829
V97T90	Lambda Electronics, Inc. 515 Broad Hollow Road Melville, NY 11747-3700

2. How to use this Illustrated Parts List

- A. If neither the part number nor the nomenclature is known, the part can be found by comparison with the exploded view illustration. When the part has been located on the illustration, note the associated index number. Find the index number in the Illustrated Parts List; the part number and nomenclature for the part may be obtained in the table.

3. How to determine the applicable "EFFECT CODE"

A. Parts used on only one part number Crew Oxygen System Regulator, Transducer and Coupling Assembly, or one part number of the Transducer and Coupling Assemblies (see IPL Figure 1), are indicated by a single letter symbol immediately following the description of a part in the "EFFECT CODE" column. An explanation of the letter symbols used is outlined below in Table 1001. A blank "EFFECT CODE" column following a part number indicates that the listed part is common to all regulator assemblies.

Table 1001: Effectivity Codes

<u>Part Number</u>	<u>"EFFECT CODE"</u>
803163-01	A
803163-02	B
803163-03	C
803163-04	D
803163-05	E
803163-06	F
803163-11	G
803163-12	H
803163-13	J
803163-14	K
803163-15	L
803163-16	M
803127-01	N
804182-01	P
804182-02	Q

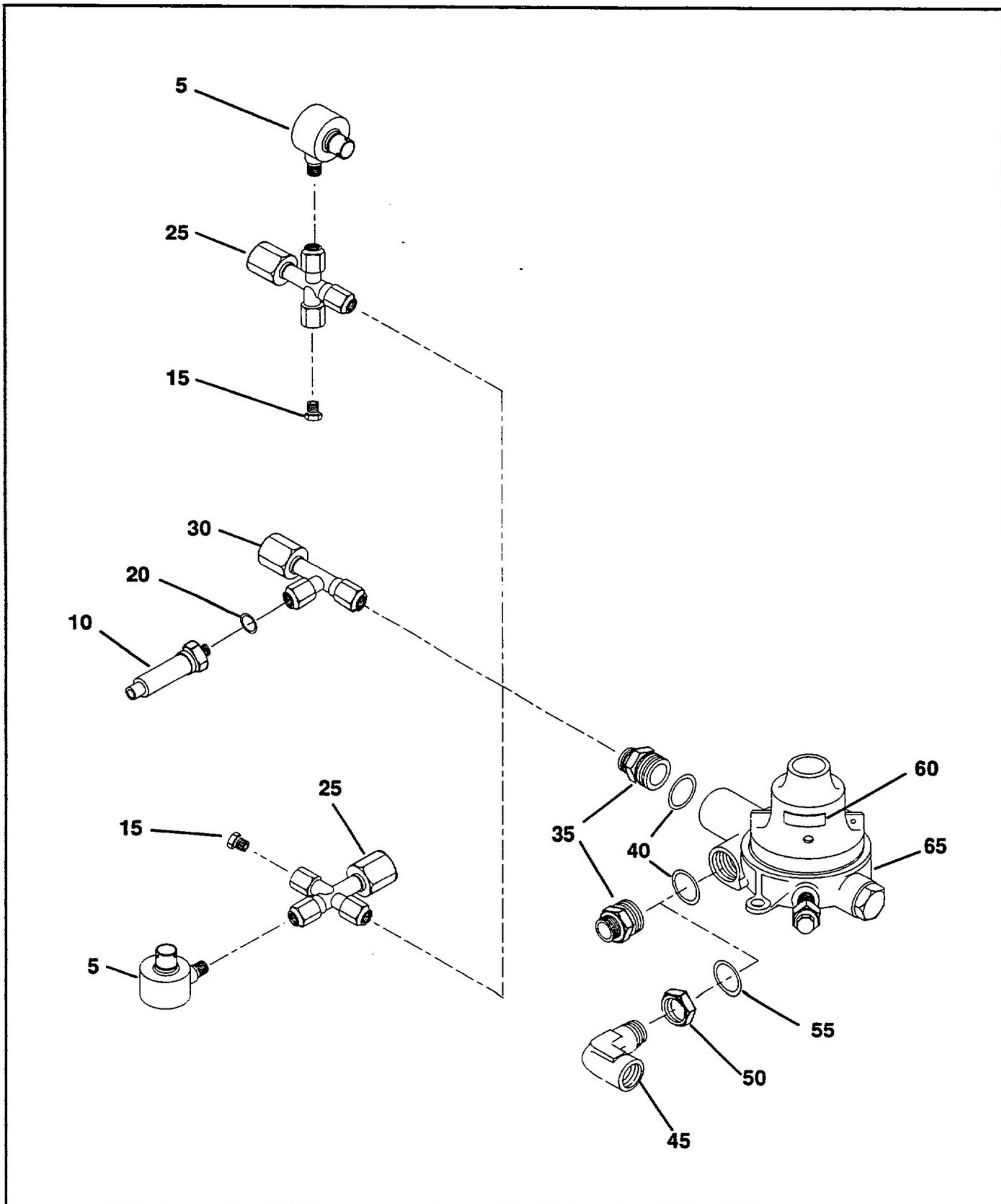


Figure 1
Regulator, Transducer and Coupling Assembly

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE	EFF. CODE	UNITS PER ASSY
1 -1	803163-01		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	A	RF
-1A	803163-02		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	B	RF
-1B	803163-03		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	C	RF
-1C	803163-04		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	D	RF
-1D	803163-05		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	E	RF
-1E	803163-06		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	F	RF
-1F	803163-11		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	G	RF
-1G	803163-12		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	H	RF
-1H	803163-13		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	J	RF
-1J	803163-14		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	K	RF
-1K	803163-15		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	L	RF
-1L	803163-16		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	M	RF
-2	803127-01		CREW OXYGEN SYSTEM REGULATOR, TRANSDUCER AND COUPLING ASSY	N	RF

- ITEM NOT ILLUSTRATED



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FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE	EFF. CODE	UNITS PER ASSY
1 - -3	804182-01		TRANSDUCER AND COUPLING ASSEMBLY	P	RF
-3A	804182-02		TRANSDUCER AND COUPLING ASSEMBLY	Q	RF
5	10003108		• TRANSDUCER (SEE VENDOR CMM 35-11-2 FOR DETAILS)	A - F, P	1
-5A	10008792		• TRANSDUCER, PRESSURE	G - M, Q	1
10	10005937		• TRANSDUCER	N	1
15	MS21913J5		• PLUG	A - M	1
20	MS9385-04		• PACKING, PREFORMED	N	1
25	801321-07		• COUPLING ASSEMBLY	A - M	1
-25A	804181-01		• COUPLING ASSEMBLY	P, Q	1
30	803159-07		• COUPLING ASSEMBLY	N	1
35	MS21902J5		• UNION, FLARELESS - TUBE	A, E, G, L, N	2
-35A	MS21902J5		• UNION, FLARELESS - TUBE	B, C, F, H, J, M	1
40	MS9385-05		• PACKING, PREFORMED	A - C, E - J, L, M, N	2
45	MS21908J5		• ELBOW, BULKHEAD	B, C, F, H, J, M	1
50	AN6289J5		• NUT	B, C, F, H, J, M	1
55	MS9058-05		• RING, BACKUP - TEFLON	B, C, F, H, J, M	1
60	10005957		• PLATE, IDENTIFICATION	A - N	1

- ITEM NOT ILLUSTRATED

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FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1 - 65	27660-02		• REGULATOR ASSY -OXYGEN (SEE CMM 35-11-26 FOR DETAILS)	B, H	1
-65A	27660-08		• REGULATOR ASSY -OXYGEN (SEE CMM 35-11-26 FOR DETAILS)	A, C, G, J, N	1
-65B	27660-23		• REGULATOR ASSY -OXYGEN (SEE CMM 35-11-26 FOR DETAILS)	E, F, L, M	1

- ITEM NOT ILLUSTRATED